THE EFFECT OF GAMBLER’S FALLACY, OVERCONFIDENCE, AND HERDING BEHAVIOR ON RISK PERCEPTION OF INVESTORS IN KOTA KINABALU

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Master in Business Administration

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ABSTRACT

Traditional finance suggested that investors are rational, but evidence from the market shows that investors are irrational and do make decisions based on some psychological factors rather than on rational thinking and economics of loss and profit alone. Behavioral finance is the study on the behavior of financial participants in the market and the studies have identified, among others, gamblers fallacy, overconfidence and herding behavior as some of the psychological behavior that effect investment decisions by investors. The objective of this study is to investigate the effect of gamblers fallacy, overconfidence and herding behavior on the risk perception of investors in Kota Kinabalu. Risk is closely associated with finance, with many theories and functions related to it and behavior may cause overestimation or underestimation of risk that could cause error in making investment decisions. The study also tried to investigate the moderating effect of financial knowledge on the relationship between gamblers fallacy, overconfidence and herding behavior on risk perception. The study is conducted using surveys questionnaires on 253 investors in Kota Kinabalu area and the data is run through Smart PLS v2.0 software to find the relationship and moderating effect between the variables. The study shows that gamblers fallacy, overconfidence and herding behavior shown significant positive relationship with risk perception. However, the study failed to find significant evidence of moderating effect of the interaction between financial knowledge on the relationship between gambler's fallacy, overconfidence and herding behavior on risk perception at 95% confidence level.
ABSTRAK

KESAN SALAHANGGAPAN PEJUDI, TERLALU YAKIN DAN GEJALA PENGIKUTAN TERHADAP PERSEPSI RISIKO PELABUR DI KOTA KINABALU

Teori kewangan tradisional mencadangkan bahawa pelabur adalah rasional, tetapi bukti pasaran menunjukkan bahawa pelabur tidak selalunya rasional dan membuat keputusan berdasarkan beberapa faktor psikologi dan bukannya kepada pemikiran rasional dan faktor untung rugi semata-mata. Kewangan tingkah laku adalah kajian terhadap perilaku peserta kewangan dalam pasaran dan kajian telah mengenal pasti, antara lain, salah anggapan penjudi (gambler’s fallacy), terlalu yakin (overconfidence) dan gejala pengikutan (herding behavior) atas beberapa tingkah laku psikologi dalam keputusan pelaburan. Objektif kajian ini adalah untuk mengkaji kesan salah anggapan penjudi (gambler’s fallacy), terlalu yakin (overconfidence) dan gejala pengikutan (herding behavior) terhadap persepsi risiko pelabur di Kota Kinabalu. Risiko berkait rapat dengan kewangan; banyak teori dan fungsi yang berkaitan dengannya dan tingkah laku boleh menyebabkan penilaian harga yang terlalu tinggi atau memandang rendah risiko yang boleh menyebabkan kesilapan dalam membuat keputusan pelaburan. Kajian ini juga cuba untuk menyiasat kesan saling kait di antara pengetahuan kewangan dan hubungan antara salah anggapan penjudi (gambler’s fallacy), terlalu yakin (overconfidence) dan gejala pengikutan (herding behavior) terhadap persepsi risiko. Kajian ini dijalankan dengan menggunakan kajian soal selidik kepada 253 pelabur di kawasan Kota Kinabalu dan data diproses melalui perisian Smart PLS v2.0 untuk mencari hubungan dan kesan hubungkait antara pembolehubah. Kajian ini menunjukkan bahawa salah anggapan penjudi (gambler’s fallacy), terlalu yakin (overconfidence) dan gejala pengikutan (herding behavior) menunjukkan hubungan positif dan signifikan dengan persepsi risiko. Walau bagaimanapun, kajian ini gagal membuktikan kesan interaksi antara pengetahuan kewangan kepada hubungan antara salah anggapan penjudi (gambler’s fallacy), terlalu yakin (overconfidence) dan gejala pengikutan (herding behavior) terhadap persepsi risiko pada tahap keyakinan 95%. 
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CHAPTER 1

INTRODUCTION

1.1 Background

In this chapter, this page present briefly the scope of this research and its objectives. The flow of this chapter allows readers to easily identify the research problems. From the stated research background, the research problems can be specified, define objectives accurately, propose research questions and set relevant hypotheses.

Finance theory attempts to understand financial market using numerous model based on the assumption that investors are rational and always select the best option with the most optimum outcome. Although many differing models have evolved in the past decades with varying degree of variables and complexities, all of these finance model are based on the assumption that people (investors) make rational decision at all times and they are not subjective to bias in their prediction (Nofsinger, 2001). Investors are always believed to be rational that take economically weighted decision every time, updates his belief timely and appropriately upon receiving information and make choices that are normatively acceptable. (Thaler, 2005).

Traditional finance theory built their models based on the assumption that people are rational and always try to optimize their returns based on the risk and return that are offered by the securities itself (Statman, 2011). However, there have been many instances where the market are not behaving as predicted by traditional finance theory and this points that investors are irrational. While traditional finance theory are studying human as a rational being that always think and act rationally like computers, evidence suggest that investors sometimes exhibit certain behavioral actions that cannot be explained by traditional finance theory (Ricciardi, 2004). If investors are rational such as claimed by traditional finance theory, the price of stocks
and other assets should always confirm to its value and as such, there should be no boom and bust cycle or bubble prices as this conditions shows that there is deviation of price of stocks or assets form its intrinsic value (Shefrin & Statman, 2011).

There are many evidence shown over the years that points to the involvement of behavior, habits or belief on the financial market. One such as evidence, explored by Banz (1981) and the father of efficient market hypothesis, Eugene Fama (1970) shows that small firms earn significantly higher returns than large firms over a period. Other behavioral evidence uncovered by French (1980) shows that stocks gave significantly negative returns on Mondays, the negative effect of year end on stock market prices (Keim, Reinganum, Roll and Gultekin and Gultekin (all in 1983), the effect of dividend and split announcement on the stock prices (Grinblatt, 1984 & Foster and Vickery, 1978) and the tendency of some investors to hold on to losing stock too long or selling bull stocks too soon. All of this point to the influence of behavior on the market and market participants that cannot be explained by traditional finance theory.

Behavioral finance emerge as the alternative on explaining this irrational behavior of stock market (Shefrin & Statman, 2011). There has been many studies done on the relatively young branch of finance. Several behavioral heuristic and biases has been identified, namely overconfidence bias, gambler’s fallacy bias, representative bias, herding bias, anchoring bias, cognitive dissonance bias, regret aversion bias, mental accounting bias, and hindsight bias.

1.2 Problem Statement

The 1997 Asian crisis and the 2008 financial crisis shown that the Malaysian market are volatile and have high volume of trading. During the great Kuala Lumpur Composite Index (KLCI) bull run of 1993-1996, KCLI was easily one of the most actively traded stock market in the world with very high volume of trading happening daily (Bloomberg, 2011). With increasing levels of the stock market index, investors
were increasingly becoming more overconfidence and more people are joining the financial market, causing the great bull run to keep pushing higher and ultimately, when the run ends with the financial crisis of 1997, many investors suffer great loses (Norli, Annuar, Taufiq & Sazali, 2009). Important to note is that abnormally high amount of volume and the capital into the stock market may suggest some behavioral bias in action; overconfidence, herding behavior and gambler’s fallacy.

Overconfidence is suggested as the main culprit of overtrading among investors, which is the chief cause of high volume of trading. (Nosic and Weber, 2010) As confidence in the investor’s skills or information increases, investors tend to increase trading activity and volume to try and maximize profit. This may have the opposite effect, as study shows that overtrading does not increase profit or value of investment, instead it may cause lower returns due to the increasing cost (legal, broker, tax, handling and other costs) and the increasing demand for investors to keep tract of all their investments. More importantly, overconfidence may increase risk taking by the investors, by increasing margin/ debt in investment and reducing diversification. In other words, the increasing overconfidence ultimately cause increasingly risky behavior in the stock market (Nosic & Weber, 2010)

Herding behavior is another bias that is attributed to the increasing volatility and volume in the market. The increasing level of stock market indexes causes more people flock into investment opportunity available and the increasing demand causes increase in asset prices beyond fundamental value (Khan, 2014). This behavior causes overvaluation of asset prices to unsustainable levels, as seen during the 2007-2008 financial crisis when prices of real property and the related mortgage backed securities increases to unusually high levels causing the great financial crisis to occur when the price become unsustainable. Herding behavior were chiefly responsible as more people flocked to buy property following other buyers and investors investing in mortgage backed securities in the masses causing unrealistic valuation without due diligence to risk. In the case of pre 1997, Malaysian investors were influenced by other investors to invest in the stock market with the premise of the great bull
run. Without proper financial knowledge, most investors may just follow the trends, causing volatility in the stock market and mismanagement of funds or risks which eventually cause most investors to failed to react accordingly to the financial crisis causing great loss for the investors and the country’s economy (Khan, 2014)

Disposition effect has always been the issue faced by individual investor in the Malaysian market despite many attempts to educate investors on the maximization of portfolio value (Chong, 2009). Behavioral bias were mainly to blame for this behavior, especially gambler’s fallacy and loss aversion (Amin, Shoukat, and Khan, 2009). The fallacy that some investors believe that asset increasing in price will eventually fall down and asset reducing in prices will eventually increase in price causes investors to ‘sell winners too soon and hold losers too long’. This is a fallacy as price of investment assets are dependent on its fundamental value, and any divergence from fundamental value is negligible, or will correct itself in due time. Increasing or reducing asset prices are independent to the future movement of the assets' value, whereby investors trying to use past movement to predict future movement of asset price irregardless of fundamental assessment may cause investors to lose out on potential long term investment opportunity, or suffer losses from failing investment.

Today the Bursa Malaysia is currently in one of the longest bull market in the world, proceeding Wall Street by 4 months (Bloomberg, 2016). High volume of trading as well as influx of investment in the country’s financial system again pose the risk of the volatility that may come with the increasing uncertainty in the world economy. Increasingly, Malaysian investors were investing, mainly in stocks, mutual fund and real property causing increasing overvaluation of asset prices. Increasing debt and bankruptcy cases in Malaysia is a big concern, mainly due to the effect on the economic and social effect of such cases on Malaysia. As more lending and investment opportunities become available, younger individual are observed to get into debt for investments such as real property, mutual fund, stocks, pyramid scheme or ASB and get trapped in the debt and bankruptcy issues. (Bank Negara Malaysia,
2015). Overtrading, herding and disposition again emerge in the investment markets especially stocks and property. As the business cycle is nearing its end and increasing evident of economic crisis in in the corner, this causes massive issues on whether Malaysian investors are evaluating the risk and value of their investments properly to ensure sustainable monetary and economic situation for the investors and for the country.

The study of finance theory deals with calculating the risk involved in securities. In psychology, risk is a subjective concept where everyone have different view and objectives causing risk perception to be different between one person to the other (Ricciardi, 2007). The risk perceived may be influenced by many different factors such as knowledge, behavior and environment. The influence of psychology on risk perception need to be focused on as it may cause severe errors such as underestimating or overestimating of risk, which will eventually effect investors perceived value of assets/ securities. As such, the study attempted to find evidence of the effect of behavioral finance bias on risk perception of investors.

1.3 Research Question

The research aims to answers whether behavioral bias of gambler’s fallacy and overconfidence exist in Malaysian investors. The study should also investigate the effect of these behavioral biases (if any) on investors risk perception.

Research question of this study are:-

1. What is the effect of gambler’s fallacy, overconfidence and herding behavior on risk perception
2. What is the effect of financial knowledge on risk perception
3. To what extent does the interaction of gambler’s fallacy, overconfidence and herding behavior with financial knowledge effect their relationship with risk perception?
1.4 Research Objective

The research objective is to investigate the prevalence of behavioral bias in Malaysian investors and its relationship with risk perception. The study focuses on two behavioral biases of gamblers fallacy, overconfidence and herding behavior and also the existence of mediating effects of financial knowledge.

The objectives of this study are:

1. to investigate the relationship between gamblers' fallacy, overconfidence, herding behavior and financial knowledge on risk perception
2. to determine to what extent does financial knowledge interact with the relationship between behavioral bias (gamblers' fallacy, overconfidence and herding behavior) and risk perception.

1.5 Scope of Study

The study attempts to investigate how much does behavior bias influence investors' perception with risk as opposed to rational unbiased decision. Risk perception is chosen as risk is one of the primary considerations for investors in their choice of investment and may influence investor's decision on the type and amount of investments. Participants are any residents above 18 years old in Kota Kinabalu district who are participating in any investment activity. Kota Kinabalu are chosen as investment opportunities and marketing of investment products such as stocks, mutual funds, real estate, investment trusts, and brokers are concentrated in the district which facilitates easy access of the population to these investment opportunities and hence, we will be more likely to find high ratios of investors within the population.
1.6 Significance of Study

The study attempts to investigate the existence of behavioral biases among Malaysian investors. Research on behavioral effect in finance market are still new and we are lacking study on the behavioral finance bias on Malaysian market participants. Therefore the study will attempts to provide evidence of the behavioral biases among Malaysian investors.

The study further attempts to investigate whether there is a relationship among the behavior bias and the risk perception of the participant. This attempts to study the effect of biases on how it cause irrational behavior in investor’s decision. As risk perception deeply effect risk taking propensities, it may cause investors to make irrational investment decisions and take unnecessary risk to their financial conditions.

1.7 Definition of key terms

**Traditional/ standard finance**- is defined by behavioural finance as the traditional view of investors as rational "wealth maximizers" who conventional economics, emotions and other extraneous factors do not influence them when it comes to making economic choices (Ricciardi, 2007). Traditional/ standard/ conventional/ modern finance theory are finance theories that try to explain economic actions made by these rational wealth maximizers, also dubbed as “*homo economicus*”. Traditional finance theory were theories explaining finance with the assumption that investors make decisions rationally and economically using utility theory (and later, expected utility theory), where they maximize the net present value (NPV) of utility, or the benefit they receive from an action

**Behavioral finance** - Behavioral finance is the study of how psychology affects financial decision making and the financial market. The study were based on prospect theory where people (investors) were viewed as behaving based on the expected risk and profit and according to certain heuristic.
Gamblers fallacy – According to Daniel, Oppenheimer & Monin (2009) gambler’s fallacy is the incorrect assumption that if a random outcome occurs more often than expected over a period of time then it is less likely to happen in the future (Chan et al, 2007) described gambler’s fallacy as the behavior that belief the chances of something happening with a fixed probability become higher or lower as the process is repeated. The belief that the chances of something happening with a fixed probability become higher or lower as the process is repeated. In the financial market settings, investors were faced with the tasks to forecast the probability in the future and mistaken belief of the existence of trends can be costly. For this study, we defined gambler’s fallacy as the belief (mistakenly) that a small sequence of events is representative of a larger events when actually the sequence are independent of each other. The fallacy are also known as ‘Law of Small Number’, ‘Law of Maturity of Chances’ and ‘Monte Carlo Fallacy’.

Overconfidence - Overconfidence is the bias resulting from people (investors) believing themselves (skill) or their information as more accurate than usual and usually they are not as correct as they think they are.

Financial knowledge – Financial knowledge, also known as financial literacy is defined as sets of skills that enable a person to make effective and informed decision with their limited financial resources (Giesler & Veresiu, 2014). Financial knowledge is the ability of a person to understand financial workings and possess sets of skills necessary to determine sound financial decision.

Risk perception – Risk is the probability of getting negative outcome as the result of doing something (Brachinger and Weber, 1997). Risk are viewed by different people differently, and this lead to different propensity and attitude towards risk (Ricciardi, 2007). Risk perception is the subjective judgment that people make about the characteristics and severity of a risk. Risk can be defined as the negative outcome that happen as a result of some course of action. In finance, risk is defined as uncertainties where investors don't have the information and will have to invest based on guessing.
1.8 Organization of the Thesis

Chapter one provides an overall concept for this study. This chapter draws research problems based on research background, clarifies research objectives, research questions and hypotheses. Chapter Two reviews on all relevant attributes of each independent variable and dependent variable, discusses the literature review of previous studies and other theoretical models that are related to this study. Chapter Three comprises the way this research is carried out such as research design, data collection methods, sampling design, research instrument, constructs measurement, data processing, and methods of data analysis. Theoretical framework and hypotheses are also formed based from the literature supported by past studies in Chapter Two.

Chapter Four demonstrates the patterns of the results through statistical techniques such as statistical analyses using SmartPLS2.0 program. It then further analyses those results to justify the research questions and hypotheses. Chapter Five summarizes all descriptive and inferential analyses stated in Chapter Four. It discusses major findings of this study and provides useful implications for researchers and practitioners. Limitations of the study and recommendations for future research are included in this chapter as well.
CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter provides an in-depth review of the literature on the recent research related to the research objectives. The chapter starts with historical review of financial theory, starting from the traditional financial theories and the underlying theory around it, and proceeds to the emergence of behavioral finance theories as the alternative to traditional finance theory. The chapter further proceeds to the literature on the variables involved in the study and we study the previous literature regarding the relationship between the variables that formed the hypothesis of this study.

2.1 Background of the Variables

2.1.1 Risk Perception

Risk is the negative preference, danger or negative outcome as the result of doing something. Risk is the matter of perception that is identified with issues in business and financial aspects (Brachinger and Weber, 1997). Many people view risk as a negative result. However, Brachinger and Weber suggested that risk is useful to evaluate and predict choices under uncertainty.

In finance, risk in an important variable for making investment decision (Ozer et al, 2004). As investors normally decides based on limited information, this led investors to act irrationally and therefore, psychology is an important factor to consider in
REFERENCE


Statman, M. 2010. The cultures of risk tolerance. SSRN Paper No.: 1647086.


